Held

Commercial Standard 31-52

SUPERSEDES CS31-38

WOOD SHINGLES

(Red Cedar, Tidewater Red Cypress, California Redwood)

A RECORDED VOLUNTARY STANDARD OF THE TRADE

COMMODITY STANDARDS

Simplified Practice Recommendations and Commercial Standards are developed by manufacturers, distributors, and users in cooperation with the Commodity Standards Division of the Office of Industry and Commerce, Bureau of Foreign and Domestic Commerce, and with the National Bureau of Standards.

The purpose of Simplified Practice Recommendations is to eliminate avoidable waste through the establishment of standards of practice for stock sizes and varieties of specific commodities that currently are in general production and demand. The purpose of Commercial Standards is to establish standard methods of test, rating, certification, and labeling of commodities, and to provide uniform bases for fair competition.

The adoption and use of a Simplified Practice Recommendation or a Commercial Standard is voluntary. However, when reference to a Commercial Standard is made in contracts, labels, invoices, or advertising literature, the provisions of the standard are enforceable through usual legal channels as a part of the sales contract.

A Simplified Practice Recommendation or a Commercial Standard originates with the proponent industry. The sponsors may be manufacturers, distributors, or users of the specific product. One of these three elements of industry submits to the Commodity Standards Division the necessary data to be used as the basis for developing a standard of practice. The Division, by means of assembled conferences or letter referenda, or both, assists the sponsor group in arriving at a tentative standard of practice and thereafter refers it to the other elements of the same industry for approval or for constructive criticism that will be helpful in making any necessary adjustments. The regular procedure of the Division assures continuous servicing of each effective Simplified Practice Recommendation and Commercial Standard, through review and revision, whenever, in the opinion of the industry, changing conditions warrant such action. Simplified Practice Recommendations and Commercial Standards are printed and made available by the Department of Commerce through the Government Printing Office and the Department of Commerce field offices.

UNITED STATES DEPARTMENT OF COMMERCE

Charles Sawyer, Secretary

U. S. DEPARTMENT OF COMMERCE
CHARLES SAWYER, Secretary

BUREAU OF FOREIGN AND DOMESTIC COMMERCE
Office of Industry and Commerce
H. B. McCOY, Director

IN COOPERATION WITH
NATIONAL BUREAU OF STANDARDS
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WOOD SHINGLES

(Red Cedar, Tidewater Red Cypress, California Redwood)

(FIFTH EDITION)

[Effective October 1, 1952]

1. PURPOSE

1.1 This quality standard for wood shingles [1] is a basis for common understanding between manufacturers, distributors, and users of this product. By its general acceptance, use, and certification by labels, it is hoped that interest may be increased in the manufacture, sale, and use of high-grade wood shingles, which should redound to the mutual advantage of all concerned.

1.2 The protection and service afforded by wood shingles is in direct proportion to the quality of shingles used, and therefore this commercial standard is provided for guidance in the manufacture, sale, and use of this product.

2. SCOPE

2.1 This quality standard provides a minimum specification for the highest commercial grade of sawn wood shingles of the three species, known as "No. 1 grade." It covers length, width, thickness, grain, characteristics, color, packing, and the grading tolerances for these requirements.

3. GENERAL REQUIREMENTS

3.1 All commercial standard wood shingles shall be of 100-percent heartwood, well manufactured, and neatly packed; they must comply with or exceed the specifications herein established for quality.

3.2 *Grain.*—All commercial standard shingles shall be strictly vertical or edge-grained; that is, the thin lines constituting the annual, or growth, rings shall be vertical when the shingle is laid flat, as in use. Edge grain is synonymous with quartered or quarter-sawed lumber or flooring, and the condition is considered fulfilled when no portion of the grain slope exceeds 45° from the perpendicular.

3.3 *Characteristics.*—Knots, worm holes, decay, shakes, checks, crimps, flat grain, cross grain, and sapwood constitute natural characteristics that are not admissible. Defects in manufacturing, includ-

[1] Shingles covered by this standard are from the following species, which are among the highest class of decay-resistant woods, the high durability, close grain, and even texture of which make them especially suitable for roofing shingles: Western red cedar (*Thuja plicata*), whose chief commercial range is in Oregon, Washington, and British Columbia; Tidewater red cypress (*Taxodium distichum*), found chiefly in the tidewater regions of Florida and Louisiana; California redwood (*Sequoia sempervirens*), found in the coastal region of northern California and the southwestern extremity of Oregon.

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ing shims, feather tips, diagonal grain, waves, and torn fiber are likewise not admissible.

3.4 *Color.*—Variations in the color of heartwood of these species are caused by differences in the density of natural color filtrations. No evidence has yet been found that the color of the heartwood of any species has any influence upon the strength or the decay resistance. Consequently, color differences are not considered defects.

4. DETAIL REQUIREMENTS

4.1 *Length.*—Minimum length shall be 16 inches. The usual lengths in addition to 16-inch shingles are 18 and 24 inches. A minus tolerance of 1 inch will be allowed in not more than 10 percent of any shipment. Shingles cut from equalized blocks or rebutted may be ¼ inch less than the standard length.

4.2 *Width.*—Maximum width shall be 14 inches. Minimum width for shingles 16 inches up to but not including 24 inches long shall be 3 inches. Minimum width for shingles 24 inches and longer shall be 4 inches. In 16- and 18-inch shingles, those less than 4 inches in width shall not constitute more than 10 percent of any shipment. Shingles shall be uniform in width, that is, with parallel sides. A tolerance of ¼-inch variation in the width shall be allowed.

4.3 *Thickness.*—Shingles are measured for thickness at the butt ends and designated according to the number of pieces necessary to constitute a specific unit of thickness. For example, 4/2 indicates that four shingles measure 2 inches, and 5/2¼ means that five shingles measure 2¼ inches in thickness. Shingles shall be uniform in thickness, but a minus tolerance of 3 percent is allowable to compensate for the difference in shrinkage encountered in kiln drying. This tolerance is based on the total thickness of the bundle.

4.4 *Packing.*—All random-width shingles shall be packed flat in straight courses. The unit shall be the "square" pack[2] and shall contain not less than the minimum quantity specified in table 1.

TABLE 1. *Running inches per bundle and unit for standard packing*

Length (inches)	Thickness (inches)	Number of courses per bundle	Number of running inches per bundle		Application basis	Recommended exposure to weather (inches)	Number of bundles per unit	Number of running inches per unit	
			Green	Dry				Green	Dry
16	5 butts—2	20/20	740	720	Roof square	5	4	2,960	2,880
16	do	do	740	720	Side-wall square, single course.	6¾	3	2,220	2,160
18	5 butts—2¼	18/18	666	655	Roof square	5½	4	2,664	2,620
18	do	do	666	655	Side-wall square, single course.	7½	3	1,998	1,965
24	4 butts—2	13/14	499	480	Roof square	7½	4	1,996	1,920
24	do	do	499	480	Side-wall square, single course.	10	3	1,497	1,440

NOTE.—In the packing of shingles the number of courses in each end are indicated, so that the designation 13/14 means a bundle with 13 courses at one end and 14 courses at the other end, or a total of 27 courses.

[2] See description under "Glossary of terms."

4.5 *Dimension shingles.*—Those shingles cut to specified widths and known as "dimension shingles" shall be designated only according to the number of pieces per bundle.

4.6 *Running inches.*—The chief concern of the shingle buyer is the amount of coverage provided in a bundle of shingles with a prescribed exposure to the weather. The coverage depends on the total width of the shingles, when laid side by side, and is referred to as "running inches," as shown respectively for "green" and "dry" in table 1. Modern methods of manufacture and of packing random-width shingles have established 18½ inches, when green, as the average measure of running inches in each course of shingles in the bundle, and the total running inches may be ascertained by multiplying this figure by the number of courses.

4.7 *Grading tolerance.*—The economical production of wood shingles requires the use of high-speed machinery and other facilities to reduce the expense incident to sorting and packing. As a consequence, it is possible that some few shingles with unnoticed defects will occasionally be put into the bundles. If reinspection is necessary because of the too frequent appearance of defects, the shipment may be refused if the total running inches of defective shingles constitute 4 percent or more of the shipment.

4.8 *Inspection.*—The inspection of wood shingles, both in carlots at destination and at customary inspection points, shall ordinarily be made on the basis of the usual unit of inspection, which is eight bundles per carload or fraction thereof. Because of the wide variation in shingle widths, all percentages shall be calculated on the basis of running inches.

5. GLOSSARY OF TERMS

Check.—A check is a lengthwise separation of the wood, which occurs usually across the rings of annual growth.

Crimp.—A crimp is a breaking down or collapse of wood fibers, usually due to an inherent condition in some timber or a result of too rapid drying.

Cross grain.—A condition that should not be confused with the terms "flat" or "edge" grain, and that might better be termed "cross fiber," since it is a deviation of the wood fibers from the true parallel of the shingle. It is a defect when it runs from one face of the shingle to the other within a longitudinal distance of 3 inches or less in that portion measured 6 inches from the butt.

Decay.—A disintegration of the wood substance caused by the action of wood-destroying fungi. Dote and rot are synonymous with decay.

Diagonal grain.—A condition where the grain of the wood does not run parallel to the edges of the shingle. It is considered a defect when the grain diverges or slants 2 inches or more in width in 12 inches of length.

Dote.—See *Decay.*

Edge grain.—See *Vertical grain.*

Feather tip.—A feather tip or shim is a condition of manufacture found on the thin ends of some shingles where the saw came out of the piece prematurely, producing a thin, flimsy, featherlike edge. The tip ends of the shingle may be uniformly thin and produce a thoroughly satisfactory roof, but when they are uneven or with corners sawn off, the shingles will not lay-up evenly.

Flat grain.—A condition in shingles or lumber where the growth rings are flat, or horizontal, as opposed to edge-grained, or quartered, material where the growth rings are on edge, or vertical to the surface.

Knot.—A knot is the remains of a branch or limb embedded in the wood substance of a tree, which has been exposed in the process of manufacture.

Rot.—See *Decay.*

Sapwood.—The portion of the wood of a tree immediately next to the bark, usually characterized by a lighter color than the heartwood or interior wood of the tree. While there is usually no difference in the physical strength of the two kinds of wood, sapwood is quite susceptible to decay.

Shake.—A shake is a lengthwise separation of the wood, which occurs usually between and parallel to the growth rings.

Shim.—See *Feather tip.*

Square pack.—A unit providing sufficient shingles for the coverage of an area of 100 square feet when the shingles are laid at any specified exposure to the weather.

Torn fiber.—This condition may also be referred to as "torn grain"—a fuzzy or whiskered appearance usually caused by a dull saw.

Vertical, or edge, grain.—A quality condition of manufacture in which the rings of annual growth are vertical to the exposed surface or nearly so, or to such an extent that no portion of the slope of ring growth exceeds 45° from the vertical.

Waves.—Irregularities on the face of a shingle (also referred to as "washboards"), usually caused by wobbling of the saw on its arbor.

Worm holes.—Worm holes are voids in the wood caused by the burrowing action of certain wood-infesting worms.

MANUFACTURERS' RECOMMENDATIONS

The following information is not part of the commercial standard for wood shingles, but represents the manufacturers' recommendations, based on long experience, for maximum service in the use of wood shingles.

TABLE 2. *Approximate covering capacities, in square feet, of the various sizes of shingles*

(Random width, square pack)

Size of shingles	Number of bundles per square	Number of inches exposed to the weather															
		4	4½	5	5½	6	6½	7	7½	8	8½	9	9½	10	10½	11	11½
1 square of 16 in. 5/2 will cover on: Roofs	4	80	90	[a]100	---	---	---	---	---	---	---	---	---	---	---	---	---
Side walls	3	---	---	---	90	95	100	105	[a]110	---	---	---	---	---	---	---	---
1 square of 18 in. 5/2¼ will cover on: Roofs	4	70	80	90	[a]100	---	---	---	---	---	---	---	---	---	---	---	---
Side walls	3	---	---	---	---	85	90	95	100	110	[a]115	---	---	---	---	---	---
1 square of 24 in. 4/2 will cover on: Roofs	4	---	---	---	---	80	90	95	[a]100	---	---	---	---	---	---	---	---
Side walls	3	---	---	---	---	---	---	---	---	80	85	90	95	100	105	110	115

[a] Greater exposure not recommended.

Proper weather exposure.—In roofing, long experience has indicated the wisdom of exposing not more than one-third of the shingle to the weather to assure adequate protection from the elements. Dry shingles should be spaced 1/4 to 3/8 inch between the edges of adjacent shingles.

Recommended shingle exposures are given in tables 3 and 4.

TABLE 3. *Roof shingle exposures for various pitches*

Pitch of roof			Maximum exposure of shingles on roofs		
Pitch	Rise	Run	16-in. shingle	18-in. shingle	24-in. shingle
	Inches	*Inches*	*Inches*	*Inches*	*Inches*
1/8	3	12	3¾	4¼	5¾
1/6	4	12	3¾	4¼	5¾
5/24	5	12	5	5½	7½
1/4	6	12	5	5½	7½
1/3	8	12	5	5½	7½
1/2	12	12	5	5½	7½

TABLE 4. *Side-wall shingle exposures for single and double coursing*

Length of shingles	Recommended exposure of shingles on side walls	
	Single course	Double course [1]
Inches	*Inches*	*Inches*
16	6 to 7½	8 to 12
18	6 to 8½	8 to 14
24	8 to 11	12 to 16

[1] Assuming exposed course is face-nailed.

Formula for covering capacities per "square":

$$\frac{\left\{\begin{array}{l}\text{Total number}\\ \text{of courses in}\\ \text{both ends of}\\ \text{bundle}\end{array}\right\} \times 18\tfrac{1}{2}^{a} \times \left\{\begin{array}{l}\text{number of}\\ \text{bundles in}\\ \text{square}\end{array}\right\} \times \left\{\begin{array}{l}\text{number of}\\ \text{inches ex-}\\ \text{posed to}\\ \text{weather}\end{array}\right\}}{144} = \text{Number of square feet 1 square will cover.}$$

[a] Running inches in each course.

Use of proper nail.—The heartwood of western red cedar, tidewater red cypress, and California redwood is naturally highly resistant to decay, and when employed as shingles for roofs or side walls, it is desirable to use nails which will last as long as the shingles. Just as the chain is no stronger than its weakest link, so is a shingled roof no more enduring than its nails. When ordinary wire nails are used, moisture soon reaches the nail and the process of rusting begins. A small pocket is formed which harbors moisture and accelerates the rusting process. In time the nails become rusted through and the shingles are torn loose under the attack of wind and weather. If the proper nails are used, however, the shingles will be held securely and give service and protection throughout their natural life.

Numerous experiments have conclusively proved the wisdom and economy of using high-grade nails, and maximum service may be assured by using either cut or wire type hot-dipped, zinc-coated nails.

LABELING

Figure 1 illustrates how an important group of producers have arranged to certify complete compliance with this commercial standard. Shingles produced by members of this group to conform to the standard may be readily identified by a copy of the label appearing on each bundle. It is understood that two other groups will use substantially the same label.

Label Series D 1080

FIGURE 1. *Facsimile of label for each bundle of grade No. 1 red cedar shingles.*

EFFECTIVE DATE

Having been passed through the regular procedure of the Commodity Standards Division, and approved by the acceptors hereinafter listed, this commercial standard was issued by the United States Department of Commerce, effective from October 1, 1952.

EDWIN W. ELY,
Chief, Commodity Standards Division.

HISTORY OF PROJECT

General conference.—Pursuant to a request of the Red Cedar Shingle Bureau, a general conference of manufacturers, distributors, and consumers of red cedar shingles met in Seattle, Wash., on March 27, 1931, and approved a commercial standard for their product that was later accepted by the trade.

A survey of adherence to the standard, covering the first 9 months of 1932, indicated its use by 97.5 percent (unweighted average) of those reporting, and numerous comments were received as to its stabilizing effect.

First revision (second edition).—In 1933 the standard was revised with the approval of the standing committee and the industry. This revision resulted from applications received from the California Redwood Association and the Southern Cypress Manufacturers Association to include California redwood and tidewater red cypress within the scope of the standard. With the addition of these two species the three principal shingle species were covered in a single standard, to the mutual advantage of all concerned.

When reprinting became necessary in 1935, the standing committee voted to reaffirm the standard without change (third edition).

Second revision (fourth edition).—In early 1938 a request was received from the Red Cedar Shingle Bureau for a revision of the standard to include No. 2 and No. 3 grade shingles. A revision conference was held in Seattle, Wash., on March 31, 1938, but the conference voted against such a revision of the standard, due chiefly to the lack of uniformity in the grade specifications of the three species. A number of minor changes were approved which did not change the grade requirements in any way, but clarified their interpretation, and several suggestions were added under the manufacturers' recommendations. The recommended revision was circulated to the industry for acceptance on May 9, 1938, and the establishment of the revision was announced on September 2, 1938, effective from October 1, 1938.

Third revision (fifth edition).—Pursuant to a request from the Red Cedar Shingle Bureau dated June 13, 1952, and following approval by the standing committee, the fifth revision was circulated on July 18, 1952, to the trade for written acceptance. Only two changes were made, namely, in the definition for cross grain, and in table 3, covering recommended exposures for shingles on various pitches of roof. Following acceptance by a satisfactory majority, the success of the revision was announced on September 2, 1952, as Commercial Standard 31–52, effective for new production from October 1, 1952.

Project Manager: J. W. Medley, Commodity Standards Division, Office of Industry and Commerce.

Technical Adviser: George W. Shaw, Building Technology Division, National Bureau of Standards.

STANDING COMMITTEE

The following individuals comprise the membership of the standing committee, which is to review, prior to circulation for acceptance, revisions proposed to keep the standard abreast of progress. Comment concerning the standard and suggestions for revision may be addressed to any member of the committee or to the Commodity Standards Division, Office of Industry and Commerce, United States Department of Commerce, which acts as secretary for the committee.

W. W. WOODBRIDGE, Red Cedar Shingle Bureau, 5510 White Building, Seattle 1, Wash. (chairman).
PAUL R. SMITH, M. R. Smith Shingle Co., White Building, Seattle, Wash.
R. D. MACKIE, Mackie Mill Co., Westport Route, Aberdeen, Wash.
CARL W. BAHR, Pacific Lumber Co., 35 East Wacker Drive, Chicago, Ill.
J. A. PRESTRIDGE, Southern Cypress Manufacturers Association, 507 Barnett National Bank Building, Jacksonville 2, Fla.
FINDLEY M. TORRENCE, Ohio Association of Retail Lumber Dealers, Green and Market Sts., Xenia, Ohio.
H. R. NORTHRUP, National Retail Lumber Dealers Association, 302 Ring Building, Washington, D. C.
GEORGE KAEHN, Weyerhaeuser Timber Co., 2563 Franklin Avenue, St. Paul 4, Minn.
PHIL RUNION, Nebraska Lumber Merchants Association, 1026 Trust Building, Lincoln 8, Nebr.
HUGH W. MASON, Fisk & Mason, 855 El Centro, South Pasadena, Calif.
T. A. JENKINS, Jr., Arthur E. Lane Mill Service, 1722 Grand Central Terminal, New York 17, N. Y.
THEODORE I. COE, American Institute of Architects, 1741 New York Avenue, Washington 6, D. C.
JOSHUA H. VOGEL, 10322 S. E. 25th Street, Bellevue, Wash.

ACCEPTANCE OF COMMERCIAL STANDARD

If acceptance has not previously been filed, this sheet properly filled in, signed, and returned will provide for the recording of your organization as an acceptor of this commercial standard.

Date_____

Commodity Standards Division,
Office of Industry and Commerce,
U. S. Department of Commerce,
Washington 25, D. C.

Gentlemen:

We believe that Commercial Standard 31–52 constitutes a useful standard of practice, and we individually plan to utilize it as far as practicable in the

production [1] distribution [1] purchase [1] testing [1]

of wood shingles.

We reserve the right to depart from it as we deem advisable.

We understand, of course, that only those articles which actually comply with the standard in all respects can be identified or labeled as conforming thereto.

(Cut on this line)

Signature of authorized officer_____
(In ink)

(Kindly typewrite or print the following lines)

Name and title of above officer_____

Organization_____
(Fill in exactly as it should be listed)

Street address_____

City, zone, and State_____

[1] Underscore which one. Please see that separate acceptances are filed for all subsidiary companies and affiliates which should be listed separately as acceptors. In the case of related interests, trade associations, trade papers, etc., desiring to record their general support, the words "General support" should be added after the signature.

TO THE ACCEPTOR

The following statements answer the usual questions arising in connection with the acceptance and its significance:

1. *Enforcement.*—Commercial standards are commodity specifications voluntarily established by mutual consent of those concerned. They present a common basis of understanding between the producer, distributor, and consumer and should not be confused with any plan of governmental regulation or control. The United States Department of Commerce has no regulatory power in the enforcement of their provisions, but since they represent the will of the interested groups as a whole, their provisions through usage soon become established as trade customs, and are made effective through incorporation into sales contracts by means of labels, invoices, and the like.

2. *The acceptor's responsibility.*—The purpose of commercial standards is to establish for specific commodities nationally recognized grades or consumer criteria, and the benefits therefrom will be measurable in direct proportion to their general recognition and actual use. Instances will occur when it may be necessary to deviate from the standard, and the signing of an acceptance does not preclude such departures; however, such signature indicates an intention to follow the commercial standard, where practicable, in the production, distribution, or consumption of the article in question.

3. *The Department's responsibility.*—The major function performed by the Department of Commerce in the voluntary establishment of commercial standards on a Nation-wide basis is fourfold; first, to act as an unbiased coordinator to bring all interested parties together for the mutually satisfactory adjustment of trade standards; second, to supply such assistance and advice as past experience with similar programs may suggest; third, to canvass and record the extent of acceptance and adherence to the standard on the part of producers, distributors, and users; and fourth, after acceptance, to publish and promulgate the standard for the information and guidance of buyers and sellers of the commodity.

4. *Announcement and promulgation.*—When the standard has been endorsed by a satisfactory majority of production or consumption in the absence of active valid opposition, the success of the project is announced. If, however, in the opinion of the standing committee or of the Department of Commerce, the support of any standard is inadequate, the right is reserved to withhold promulgation and publication.

ACCEPTORS

The organizations listed below have individually accepted this standard for use as far as practicable in the production, distribution, or purchase of wood shingles. In accepting the standard they reserved the right to depart from it as they individually deem advisable. It is expected that wood shingles which actually comply with the requirements of this standard in all respects will be regularly identified or labeled as conforming thereto, and that purchasers will require such specific evidence of conformity.

ASSOCIATIONS

(General Support)

American Specification Institute, Chicago, Ill.
Building Officials Conference of America, Washington, D. C.
California Redwood Association, San Francisco, Calif.
Carolina Lumber and Building Supply Association, Charlotte, N. C.
Consolidated Red Cedar Shingle Association of British Columbia, Vancouver, B. C., Canada.
Greater New York Lumber Industries, Inc., New York, N. Y.
Red Cedar Shingle Bureau, Seattle, Wash.
Shingle Inspection Service, Seattle, Wash.
Southern Cypress Manufacturers Association, Jacksonville, Fla.

FIRMS AND OTHER INTERESTS

Adams, Franklin O., Tampa, Fla.
Aloha Lumber Corp., Aloha, Wash.
American Houses, Inc., New York, N. Y.
American Shingle Co., Garibaldi, Oreg.
Andrews, Jones, Biscoe & Goodell, Boston, Mass.
Barthmaier, Eugene V., Philadelphia, Pa.
Beaver Falls Planing Mill Co., Beaver Falls, Pa.
Belli, Edo J., Chicago, Ill.
Bridal Falls Shingle Co., Startup, Wash.
British Columbia Forest Products, Ltd., Hammond, B. C., Canada.
Brust & Brust, Milwaukee, Wis.
Burrow Lumber Co., Canyon, Tex.
Canadian Forest Products Ltd., Vancouver, B. C., Canada.
Cannon & Mullen, Salt Lake City, Utah.
Cedar Valley Shingle Co., Kelso, Wash,
Cellarius, Chas. F., Cincinnati, Ohio.
Central of Georgia Railway Co., Savannah, Ga.
Chapin Lumber Co., Aurora, Colo.
Cispus Shingle Co., Randle, Wash.
City Line Lumber Corp., Rosedale, Long Island, N. Y.
Clearwater Shingle Co., Clearwater, Wash.
Conrad & Cummings, Binghamton, N. Y.
Continental Forest Products Co., Cedar Rapids, Iowa.
Coolidge, Shepley, Bulfinch & Abbott, Boston, Mass.
Coos Bay Shingle Co., Coos Bay, Oreg.
Cooston Shingle Co., North Bend, Oreg.
Cram & Ferguson, Boston, Mass.
Crescent Shingle Co., Kelso, Wash.
Curran Bros., Pomona, Calif.
D & S Shingle Co., Randle, Wash.
DeJarnette, Charles Wagner, Des Moines, Iowa.
Deming Lumber Co., Deming, Wash.
Detroit, City of, Department of Public Works, Detroit, Mich.
Dickerson Lumber Co., Huntington, W. Va.
Douglas Fir Wholesalers, Inc., Marysville, Wash.
Elmendorf Research Inc., Chicago, Ill.
Fetzer & Fetzer, Salt Lake City, Utah.
Finley Lumber Co., Norristown, Pa.
Fisk & Mason, South Pasadena, Calif.
Flannagan, Eric G., Henderson, N. C.
Flavelle Cedar Ltd., Port Moody, B. C., Canada.
Fluhrer Bros., Astoria, Oreg.
Foley Lumber Industries, Inc., Foley, Fla.
Forest Grove Shingle Co., Forest Grove, Oreg.
Forks Shingle Co., Inc., Forks, Wash.
Fraser Valley Shingle Co., Ltd., Vedder Crossing, B. C., Canada.
Fuller Goodman Co., Oshkosh, Wis.
Gordon-Ladley Plywood Products Co., Elma, Wash.
Gray, Robert, Cedar Lumber Co., Inc., Hoquiam, Wash.
Hager & Cove Lumber Co., Lansing, Mich.
Hall, Border & Donaldson, Baltimore, Md.
Hallack & Howard Lumber Co., Denver, Colo.
Hanan, Chas., Lumber & Building Material, Macomb, Ill.
Hardman Manufacturing Co., Anacortes, Wash.
Higgins, Charles H., New York, N. Y.
Hinckley, John, & Son Co., Hyannis, Mass.
Hogner, P. R. L., Architect, Pittsburgh, Pa.
Holcomb Yard, Sycamore, Ill.
Horne Bros. Shingle Co., Ltd., North Vancouver, B. C., Canada.
Hulbert, William, Mill Co., Everett, Wash.
Hunter, T. H., Lumber, Piling and Ties, Beaumont, Tex.
Idanha Shingle Co., Inc., Idanha, Oreg.
Ivey, Edwin J., Inc., Seattle, Wash.
James Lumber Co., Boston, Mass.
Jamison Mill Co., Everett, Wash.
Johnson, B. E., Ukiah, Calif.
Jones, Alf, Lumber Co., Kansas City, Mo.
Law, Law, Potter & Nystrom, Madison, Wis.
Leidigh & Havens Lumber Co., Kansas City, Mo.
Lewis, J. A., Shingle Co., Inc., Wheeler, Oreg.
Leybold-Smith Shingle Co., Inc., Tacoma, Wash.
Loeb, Laurence M., White Plains, N. Y.
Longlyfe Shingle Co., Kalama, Wash.
Longview Shingle Co., Longview, Wash.
MacDonald, C. A., Shingle Mill, Vernonia, Oreg.
Mackie Mill Co., Aberdeen, Wash.
MacMillan & Bloedel, Ltd., Vancouver, B. C., Canada.
Mann & Co., Hutchinson, Kans.
Marine View Cedar Products Co., Tacoma, Wash.

Marona Mill Co., Acme, Wash.
Mason, A., & Sons, Inc., Peru, N. Y.
McCarter Shingle Co., Ltd., Victoria, B. C., Canada.
McNair, Robert, Shingle Co., Ltd., Vancouver, B. C., Canada.
Mershon, John D., Forest Products Co., Inc., Saginaw, Mich.
Mid-West Lumber Co., Mankato, Kans.
Midwest Lumber Co., Dubuque, Iowa.
Miller & Vrydagh, Terre Haute, Ind.
Monroe Shingle Co., Monroe, Wash.
Montgomery & Patteson, Charleston, W. Va.
Morrison-Merrill & Co., Salt Lake City, Utah.
Mount Pleasant Shingle Co., Port Angeles, Wash.
Newberg Shingle Co., Lacomb, Oreg.
New York Central System, New York, N. Y.
North Shore Shingle Co., Ltd., North Vancouver, B. C., Canada.
Northern Timber Co., Ltd., Vancouver, B. C., Canada.
Northern Timber Co., Ltd., Fanny Bay, B. C., Canada.
Northwest Cedar Products Ltd., Vancouver, B. C., Canada.
Ocean Beach Shingle Mill, Kelso, Wash.
Olympia Shingle Co., Olympia, Wash.
Olympic Stained Products Co., Seattle, Wash.
Pacific Lumber Co., San Francisco, Calif.
Packwood Shingle Co., Packwood, Wash.
Patten-Blinn Lumber Co., Los Angeles, Calif.
Patzig Testing Laboratories, Des Moines, Iowa.
Pearce Shingle Co., North Bend, Wash.
Perma Products Co., Cleveland, Ohio.
Portland Shingle Co., Portland, Oreg.
Quinault Shingle Co., Amanda Park, Wash.
Rainier Mill Co., Rainier, Oreg.
Ridgefield Shingle Co., Ridgefield, Wash.
Riverside Shingle Mills, Ltd., New Westminster, B. C., Canada.
Romane Cedar Products, Fall Creek, Oreg.
Roseburg Shingle Co., Roseburg, Oreg.
Ross Lumber Co., Chewelah, Wash.
Russell, Mullgardt, Schwarz, Van Hoefen, St. Louis, Mo.
Saginaw Shingle Co., Aberdeen, Wash.
Schmitts Shingle Mill, Blachly, Oreg.
Seattle Cedar Lumber Manufacturing Co., Seattle, Wash.
Shenk, Henry, Co., Erie, Pa.
Shurtleff & Co., Elgin, Ill.
Smith, M. R., Shingle Co., Moclips, Wash.
Smith, M. R., Shingle Co., Seattle, Wash.
Stave Lake Cedar, Ltd., Dewdney, B. C., Canada.
Stewart, A. P., Lumber Co., Thermopolis, Wyo.
Stoetzel, Ralph, Chicago, Ill.
Straus, Carl B., Minneapolis, Minn.
Super Mill Co., Everett, Wash.
Swam, W. A., Shingle Mill, Sedro, Wash.
Swan Lake Moulding Co., Klamath Falls, Oreg.
Thompson Lumber Co., Champaign, Ill.
Tietig & Lee, Cincinnati, Ohio.
Triple "S" Shingle Co., Tillamook, Oreg.
Valley Shingle Co., North Hollywood, Calif.
Vancouver Shingle Co., Ltd., Port Moody, B. C., Canada.
Van Pelt, John V., Patchogue, N. Y.
Vogel, Joshua A., Bellevue, Wash.
West, Albert E., Boston, Mass.
West Coast Lumber Co., Sarasota, Fla.
Western Forest Industries, Ltd., Vancouver, B. C., Canada.
Western Shingle Co., Vancouver, B. C., Canada.
Weyerhaeuser Sales Co., St. Paul, Minn.
White Creek Shingle Co., Rockport, Wash.
Wilbur Lumber Co., West Allis, Wis.
Willapa Cedar Sales Co., Raymond, Wash.
Wood Lumber Co., Inc., Birmingham, Ala.

U. S. GOVERNMENT AGENCIES

Army, Department of, Washington, D. C.
General Services Administration, Public Buildings Service, Washington, D. C.

COMMERCIAL STANDARDS

CS No.

0. Commercial standards and their value to business.
1. Clinical thermometers.
2. Mopsticks.
3. Stoddard solvent.
4. Staple porcelain (all-clay) plumbing fixtures.
5. Pipe nipples; brass, copper, steel and wrought-iron.
6. Wrought-iron pipe nipples. Superseded by CS5.
7. Standard weight malleable iron or steel screwed unions.
8. Gage blanks.
9. Builders' template hardware.
10. Brass pipe nipples. Superseded by CS5.
11. Moisture regains of cotton yarns.
12. Fuel oils.
13. Dress patterns.
14. Boys' sport and dress shirt (woven fabrics) size measurements.
15. Men's pajama sizes (made from woven fabrics).
16. Wallpaper.
17. Diamond core drill fittings.
18. Hickory golf shafts.
19. Foundry patterns of wood.
20. Vitreous china plumbing fixtures.
21. Interchangeable ground-glass joints, stopcocks, and stoppers.
22. Builders' hardware (nontemplate).
23. Feldspar.
24. Screw threads and tap-drill sizes.
25. Special screw threads. Superseded by CS24.
26. Aromatic red cedar closet lining.
27. Mirrors.
28. Cotton fabric tents, tarpaulins and covers.
29. Staple seats for water-closet bowls.
30. (Withdrawn.)
31. Wood shingles.
32. Cotton cloth for rubber and pyroxylin coating.
33. Knit underwear (exclusive of rayon).
34. Bag, case, and strap leather.
35. Hardwood plywood.
36. Fourdrinier wire cloth.
37. Steel bone plates and screws.
38. Hospital rubber sheeting.
39. (Withdrawn.)
40. Surgeons' rubber gloves.
41. Surgeons' latex gloves.
42. Structural fiber insulating board.
43. Grading of sulphonated oils.
44. Apple wraps.
45. Douglas fir plywood.
46. Hosiery lengths and sizes.
47. Marking of gold-filled and rolled-gold-plate articles other than watchcases.
48. Domestic burners for Pennsylvania anthracite (underfeed type).
49. Chip board, laminated chip board, and miscellaneous boards for bookbinding purposes.
50. Binders board for bookbinding and other purposes.
51. Marking articles made of silver in combination with gold.
52. Mohair pile fabrics (100-percent mohair plain velvet, 100-percent mohair plain frieze, and 50-percent mohair plain frieze).

CS No.

53. Colors and finishes for cast stone.
54. Mattresses for hospitals.
55. Mattresses for institutions.
56. Oak flooring.
57. Book cloths, buckrams, and impregnated fabrics for bookbinding purposes except library bindings.
58. Woven elastic fabrics for use in overalls (overall elastic webbing).
59. Textiles—testing and reporting.
60. Hardwood dimension lumber.
61. Venetian blinds (grade A, custom-made).
62. Colors for kitchen accessories.
63. Colors for bathroom accessories.
64. Walnut veneers.
65. Methods of analysis and of reporting fiber composition of textile products.
66. Marking of articles made wholly or in part of platinum.
67. Marking articles made of karat gold.
68. Liquid hypochlorite disinfectant, deodorant and germicide.
69. Pine oil disinfectant.
70. Phenolic disinfectant (emulsifying type) (published with CS71).
71. Phenolic disinfectant (soluble type) (published with CS70).
72. Household insecticide (liquid spray type).
73. Old growth Douglas fir, Sitka spruce, and western hemlock standard stock doors.
74. Solid hardwood wall paneling.
75. Automatic mechanical draft oil burners designed for domestic installations.
76. Hardwood interior trim and molding.
77. Enameled cast-iron plumbing fixtures.
78. Ground-and-polished lenses for sun glasses (published with CS79).
79. Blown, drawn, and dropped lenses for sun glasses (published with CS78).
80. Electric direction signal systems other than semaphore type for commercial and other vehicles subject to special motor vehicle laws (after market).
81. Adverse-weather lamps for vehicles (after market).
82. Inner-controlled spotlamps for vehicles (after market).
83. Clearance, marker, and identification lamps for vehicles (after market).
84. Electric tail lamps for vehicles (after market).
85. Electric license-plate lamps for vehicles (after market).
86. Electric stop lamps for vehicles (after market).
87. Red electric warning lanterns.
88. Liquid burning flares.
89. Hardwood stair treads and risers.
90. Power cranes and shovels.
91. Factory-fitted Douglas fir entrance doors.
92. Cedar, cypress, and redwood tank stock lumber.
93. Portable electric drills (exclusive of high frequency).
94. Calking lead.
95. Lead pipe.
96. Lead traps and bends.

CS No.
97. Electric supplementary driving and passing lamps for vehicles (after market).
98. Artists' oil paints.
99. Gas floor furnaces—gravity circulating type.
100. Porcelain-enameled steel utensils.
101. Flue-connected oil-burning space heaters equipped with vaporizing pot-type burners.
102. (Reserved for "Diesel and fuel-oil engines.")
103. Rayon jacquard velour (with or without other decorative yarn).
104. Warm-air furnaces equipped with vaporizing-type oil burners.
105. Mineral wool insulation for low temperatures.
106. Boys' pajama sizes (woven fabrics).
107. (Withdrawn.)
108. Treading automobile and truck tires.
109. Solid-fuel-burning forced-air furnaces.
110. Tire repairs—vulcanized (passenger, truck, and bus tires).
111. Earthenware (vitreous-glazed) plumbing fixtures.
112. Homogeneous fiber wallboard.
113. Oil-burning floor furnaces equipped with vaporizing pot-type burners.
114. Hospital sheeting for mattress protection.
115. Porcelain-enameled tanks for domestic use.
116. Bituminized-fibre drain and sewer pipe.
117. Mineral wool insulation for heated industrial equipment.
118. Marking of jewelry and novelties of silver.
(E)119.[1] Dial indicators (for linear measurements).
120. Standard stock ponderosa pine doors.
121. Women's slip sizes (woven fabrics).
122. Western softwood plywood.
123. Grading of diamond powder.
(E)124.[1] Master disks.
125. Prefabricated homes.
126. Tank-mounted air compressors.
127. Self-contained mechanically refrigerated drinking water coolers.
128. Men's sport shirt sizes—woven fabrics (other than those marked with regular neckband sizes).
129. Materials for safety wearing apparel.
130. Color materials for art education in schools.
131. Industrial mineral wool products, all types—testing and reporting.
132. Hardware cloth.
133. Woven wire netting.
134. Cast aluminum cooking utensils (metal composition).
135. Men's shirt sizes (exclusive of work shirts).
136. Blankets for hospitals (wool, and wool and cotton).
137. Size measurements for men's and boys' shorts (woven fabrics).
138. Insect wire screening.
139. Work gloves.
140. Testing and rating convectors.
141. Sine bars, blocks, plates, and fixtures.
142. Automotive lifts.
143. Standard strength and extra strength perforated clay pipe.
144. Formed metal porcelain enameled sanitary ware.

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145. Testing and rating hand-fired hot-water-supply boilers.
146. Gowns for hospital patients.
147. Colors for molded urea plastics.
148. Men's circular flat- and rib-knit rayon underwear.
149. Utility type house dress sizes.
150. Hot-rolled rail steel bars (produced from tee-section rails).
151. Body measurements for the sizing of apparel for infants, babies, toddlers, and children (for the knit underwear industry).
152. Copper naphthenate wood-preservative (spray, brush, dip application).
153. Body measurements for the sizing of apparel for girls (for the knit underwear industry).
154. (Reserved for "Wire rope.")
155. Body measurements for the sizing of boys' apparel (knit underwear, shirts, trousers).
156. Colors for polystyrene plastics.
157. Ponderosa pine and sugar pine plywood.
158. Model forms for girls' apparel.
159. Sun glass lenses made of ground and polished plate glass, thereafter thermally curved.
160. Wood-fiber blanket insulation (for building construction).
161. "Standard grade" hot-dipped galvanized ware (coated after fabrication).
162. Tufted bedspreads.
163. Standard stock ponderosa pine windows, sash, and screens.
164. (Reserved for "Concrete mixers.")
165. Zinc naphthenate wood-preservative (spray, brush, dip application).
166. Size measurements for men's work trousers.
167. Automotive and general service copper tube.
168. Polystyrene plastic wall tiles, and adhesives for their application.
169. Galvanized ware fabricated from *pregalvanized* steel sheets.
170. Cotton flour-bag (sack) towels.
171. Hardwood veneered doors.
172. Brass trim for water-closet bowls, tanks, and urinals (dimensional standards).
173. Heavy-duty alpha-cellulose-filled melamine tableware.
174. 140–F dry-cleaning solvent.
175. Circular-knitted gloves and mittens.
176. Prefinished wall panels.
177. Bituminous-coated metal septic tanks (single compartment, residential).
178. Testing and rating ventilating fans (axial and propeller types).
179. Installation of attic ventilation fans in residences.
180. Model forms for boys' apparel.
181. Water-resistant organic adhesives for installation of clay tile.
182. Latex foam mattresses for hospitals.
183. Boys' trouser size measurements.
184. Steel fence posts—field and line type (produced from hot-rolled steel sections).
185. Wool felt.
186. Boys' sports outerwear size measurements.
187. Men's work shirt sizes.

[1] Where "(E)" precedes the CS number, it indicates an emergency commercial standard, drafted under war conditions.

U. S. GOVERNMENT PRINTING OFFICE: 1952

U.S. Department of Commerce
National Institute of Standards and Technology
(formerly National Bureau of Standards-NBS)
Office of Standards Services

Commercial Standard CS31-52

Wood Shingles
(Red Cedar, Tidewater Red Cypress, California Redwood)

Commercial Standard CS31-52 [supersedes CS31-38), Wood Shingles (Red Cedar, Tidewater Red Cypress, California Redwood), was withdrawn by the Department of Commerce on March 10, 1975.

For additional information and assistance, contact:

Cedar Shake and Shingle Bureau (CSSB)
515 116th Avenue, NE, Suite 275
Bellevue, Washington 98004-5294, USA
Telephone: (425) 453-1323; Fax: (425) 455-1314
http://www.cedarbureau.org

CSSB was formed by merger of Red Cedar Shingle Bureau and Handsplit Red Cedar Shake Association.

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The following organization may provide further assistance and information:

California Redwood Association (CRA)
405 Enfrente Drive, Suite 200
Novato, California 94949, USA
Telephone:(415) 382-0662; Fax: (415) 382-8531

Commercial Standard 31-52

SUPERSEDES CS31-38

WOOD SHINGLES

(Red Cedar, Tidewater Red Cypress, California Redwood)

A RECORDED VOLUNTARY STANDARD OF THE TRADE

COMMODITY STANDARDS

Simplified Practice Recommendations and Commercial Standards are developed by manufacturers, distributors, and users in cooperation with the Commodity Standards Division of the Office of Industry and Commerce, Bureau of Foreign and Domestic Commerce, and with the National Bureau of Standards.

The purpose of Simplified Practice Recommendations is to eliminate avoidable waste through the establishment of standards of practice for stock sizes and varieties of specific commodities that currently are in general production and demand. The purpose of Commercial Standards is to establish standard methods of test, rating, certification, and labeling of commodities, and to provide uniform bases for fair competition.

The adoption and use of a Simplified Practice Recommendation or a Commercial Standard is voluntary. However, when reference to a Commercial Standard is made in contracts, labels, invoices, or advertising literature, the provisions of the standard are enforceable through usual legal channels as a part of the sales contract.

A Simplified Practice Recommendation or a Commercial Standard originates with the proponent industry. The sponsors may be manufacturers, distributors, or users of the specific product. One of these three elements of industry submits to the Commodity Standards Division the necessary data to be used as the basis for developing a standard of practice. The Division, by means of assembled conferences or letter referenda, or both, assists the sponsor group in arriving at a tentative standard of practice and thereafter refers it to the other elements of the same industry for approval or for constructive criticism that will be helpful in making any necessary adjustments. The regular procedure of the Division assures continuous servicing of each effective Simplified Practice Recommendation and Commercial Standard, through review and revision, whenever, in the opinion of the industry, changing conditions warrant such action. Simplified Practice Recommendations and Commercial Standards are printed and made available by the Department of Commerce through the Government Printing Office and the Department of Commerce field offices.

UNITED STATES DEPARTMENT OF COMMERCE

Charles Sawyer, Secretary